

IN THE CLAIMS:

1. (Currently amended) A method for producing at least one proteinaceous substance in a eukaryotic cell, said method comprising:

providing a eukaryotic cell having a nucleic acid sequence in the eukaryotic cell's genome, said nucleic acid sequence encoding ~~at least one~~ adenoviral E1 E1A and E1B protein proteins, which eukaryotic cell further does not comprise a sequence encoding a structural adenoviral protein in its genome;

introducing a gene encoding a recombinant proteinaceous substance into the eukaryotic cell;

culturing said eukaryotic cell in a suitable medium; and

harvesting at least one proteinaceous substance from said eukaryotic cell, said suitable medium, or both said eukaryotic cell and said medium.

2. (Cancelled).

3. (Previously presented) The method according to claim 1, wherein said eukaryotic cell is a mammalian cell.

4. (Cancelled).

5. (Previously presented) The method according to claim 1, wherein at least one of the proteinaceous substance harvested is encoded by said gene.

6. (Currently amended) A method for producing at least one human recombinant protein in a cell, said method comprising:

providing a human cell[[],] with a gene encoding a human recombinant protein, wherein said human cell has in its genome a sequence encoding ~~at least one adenoviral E1 E1A and E1B protein proteins, and wherein said human cell further does not produce structural adenoviral proteins and does not comprise a sequence encoding a structural adenoviral protein in its genome;~~

culturing said human cell in a suitable medium; and
harvesting the human recombinant protein from the human cell, the suitable medium, or both said human cell and said medium.

7-10. (Cancelled).

11. (Previously presented) The method according to claim 1, wherein said proteinaceous substance is a protein that undergoes post-translational or peri-translational modification, or a combination thereof.

12. (Cancelled).

13. (Previously presented) The method according to claim 1, wherein said proteinaceous substance is erythropoietin.

14. (Previously presented) The method according to claim 13, wherein said eukaryotic cell produces in excess of 100 units erythropoietin thereof per million cells in 24 hours.

15-21. (Cancelled).

22. (Withdrawn) A recombinant mammalian cell immortalized by the presence of at least one adenoviral E1A protein or a functional derivative, homologue and/or fragment thereof, said recombinant mammalian cell comprising:
a nucleic acid in a functional format for expressing at least one variable domain of an immunoglobulin or a functional derivative, homologue and/or fragment thereof; and
a nucleic acid derived from an adenovirus encoding said at least one E1A protein.

23-72. (Canceled).

73. (Previously presented) The method according to claim 6, wherein said human recombinant protein is a protein that undergoes post-translational or peri-translational modification, or a combination thereof.

74. (Previously presented) The method according to claim 6, wherein said human recombinant protein is erythropoietin.

75. (Previously presented) The method according to claim 74, wherein said eukaryotic cell produces in excess of 100 units erythropoietin thereof per million cells in 24 hours.

76. (Previously presented) The method according to claim 1, wherein said eukaryotic cell is a human cell.

77. (Previously presented) The method according to claim 1, wherein said proteinaceous substance comprises a viral protein other than an adenoviral protein.

78. (Previously presented) The method according to claim 3, wherein said proteinaceous substance comprises a viral protein other than an adenoviral protein.

79. (Previously presented) The method according to claim 11, wherein said proteinaceous substance comprises a viral protein other than an adenoviral protein.

80. (Previously presented) The method according to claim 6, wherein said human recombinant protein comprises a viral protein other than an adenoviral protein.

81. (Cancelled).

82. (Previously presented) The method according to claim 77, where said viral protein is selected from the group consisting of: an influenza virus neuramidase or a hemagglutinin; an enterovirus protein or a functional equivalent thereof; a herpes virus protein or a functional equivalent thereof; an orthomyxovirus protein; a retrovirus, a parvovirus or a popavovirus protein; a rotavirus or a coronavirus protein; a togavirus protein, rubella virus protein or an Eastern-, Western-, or Venezuelan equine encephalomyelitis virus protein; a hepatitis causing virus protein, a hepatitis A protein, or a hepatitis B virus protein; and a pestivirus protein, such as hog cholera virus protein or a rhabdovirus protein, such as a rabies virus protein.

83. (Previously presented) The method according to claim 78, where said viral protein is selected from the group consisting of: an influenza virus neuramidase or a hemagglutinin; an enterovirus protein or a functional equivalent thereof; a herpes virus protein or a functional equivalent thereof; an orthomyxovirus protein; a retrovirus, a parvovirus or a popavovirus protein; a rotavirus or a coronavirus protein; a togavirus protein, rubella virus protein or an Eastern-, Western-, or Venezuelan equine encephalomyelitis virus protein; a hepatitis causing virus protein, a hepatitis A protein, or a hepatitis B virus protein; and a pestivirus protein, such as hog cholera virus protein or a rhabdovirus protein, such as a rabies virus protein.

84. (Previously presented) The method according to claim 79, where said viral protein is selected from the group consisting of: an influenza virus neuramidase or a hemagglutinin; an enterovirus protein or a functional equivalent thereof; a herpes virus protein or a functional equivalent thereof; an orthomyxovirus protein; a retrovirus, a parvovirus or a papavovirus protein; a rotavirus or a coronavirus protein; a togavirus protein, rubella virus protein or an Eastern-, Western-, or Venezuelan equine encephalomyelitis virus protein; a hepatitis causing virus protein, a hepatitis A protein, or a hepatitis B virus protein; and a pestivirus protein, such as hog cholera virus protein or a rhabdovirus protein, such as a rabies virus protein.

85. (Previously presented) The method according to claim 80, where said viral protein is selected from the group consisting of: an influenza virus neuramidase or a hemagglutinin; an enterovirus protein or a functional equivalent thereof; a herpes virus protein or a functional equivalent thereof; an orthomyxovirus protein; a retrovirus, a parvovirus or a papavovirus protein; a rotavirus or a coronavirus protein; a togavirus protein, rubella virus protein or an Eastern-, Western-, or Venezuelan equine encephalomyelitis virus protein; a hepatitis causing virus protein, a hepatitis A protein, or a hepatitis B virus protein; and a pestivirus protein, such as hog cholera virus protein or a rhabdovirus protein, such as a rabies virus protein.

86. (Cancelled).

87. (Withdrawn) The method according to claim 1, wherein said eukaryotic cell further comprises a sequence encoding E2A or a functional derivative or analogue or fragment thereof in its genome.

88. (Withdrawn) The method according to claim 6, wherein said eukaryotic cell further comprises a sequence encoding E2A or a functional derivative or analogue or fragment thereof in its genome.

89. (Withdrawn) The method according to claim 88, wherein said E2A encoding sequence encodes a temperature sensitive mutant E2A.

90. (Withdrawn) The method according to claim 89, wherein said E2A encoding sequence encodes a temperature sensitive mutant E2A.

91. (Withdrawn) A recombinant erythropoietin molecule produced by the method of claim 1.

92. (Withdrawn) A recombinant erythropoietin molecule produced by the method of claim 6.

93. (Withdrawn) The recombinant protein of claim 92 wherein said recombinant protein has a human glycosylation pattern different from that of the protein's isolated natural counterpart protein.

94. (Withdrawn) The recombinant protein of claim 93 wherein said recombinant protein has a human glycosylation pattern different from that of the protein's isolated natural counterpart protein.

95. (Withdrawn) The recombinant mammalian cell of claim 22, further comprising: a nucleic acid derived from an adenovirus encoding an E1B protein.

96. (Cancelled).

97. (Previously presented) The method according to claim 1, wherein said eukaryotic cell is derived from a primary cell.

98. (Previously presented) The method according to claim 1, wherein said eukaryotic cell is derived from a PER.C6 cell.

99. (Previously presented) The method according to claim 6, wherein said eukaryotic cell is derived from a primary cell.

100. (Previously presented) The method according to claim 6, wherein said eukaryotic cell is derived from a PER.C6 cell.

101. (Previously presented) The method according to claim 1, wherein said suitable medium is a serum-free medium.

102. (Previously presented) The method according to claim 6, wherein said suitable medium is a serum-free medium.

103-104. (Cancelled).

105. (Previously presented) The method according to claim 1, wherein said proteinaceous substance is a protein.

106. (Previously presented) The method according to claim 1, wherein said proteinaceous substance is an immunoglobulin.

107. (Previously presented) The method according to claim 6, wherein said proteinaceous substance is an immunoglobulin.